REMARKS

In response to the Official Action dated October 9, 2002, applicants have elected Species II, claims 14-20, with traverse.

Applicants traverse the election of species requirement at least for the reason that the Examiner has not indicated any reasons as to why the two identified species are either independent or distinct from each other. See M.P.E.P. §803. To make an election requirement, the Examiner must set forth why the species are either independent or distinct from each other any why examination of the entire application would place a serious burden on the Examiner. Since the Examiner has not presented such evidence, the election requirement is improper and should be withdrawn.

Furthermore, in the event that the Examiner refuses to withdraw the requirement, Applicants submit that only claim 3 should be in group I and that the elected group II should include claims 1, 2, and 4-20. Specifically, the Examiner has identified species I as "having an annular metal member insulated from the chamber". However, such language is only in claim 3, and is not in independent claim 1. Thus, at best, only claim 3 belongs in species I.

Accordingly, the Examiner is respectfully requested to withdraw the restriction requirement completely, or else revise it so that species I includes only claim 3.

Minor amendments have been made to the specification and claims. And, new dependent claims 21 - 26 are added. The new claims are patentable over the prior art for the same reasons as the independent claims.

The Examiner is respectfully requested to enter the foregoing amendments prior to examining the application on the merits.

In the event that there are any questions concerning this response, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

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Mark-up of Specification Paragraphs 27, 29, and 40

[0027] Figure 3 is a magnified sectional front view showing the vicinity of a section through the dielectric ring 50 and the metal ring 52. The inner circumferential face of the dielectric ring 50 is in contact with the outer circumferential face of the cathode 38. The dielectric ring 50 projects downward by a distance "a" from the lower face of the cathode 38. This part of the dielectric ring 50 extending below the lower face of the cathode 38 is referred to as the projecting part of the dielectric ring 50. The hollow circular plate-shaped metal ring 52 is mounted on the lower face of this projecting part. The metal ring 52 is 3 mm thick, although other thicknesses may be used. The metal ring 52 is arranged parallel with the surface of the target 48. The distance between the upper face of the metal ring 52 and the lower face of the cathode 38 is the same as "a". The inner circumferential edge 64 of the metal ring 52 projects inward by a distance "b" from the inner circumferential face 62 of the dielectric ring 50. Because the metal ring 52 projects inward from the dielectric ring 50 in this way, it becomes difficult for film to be deposited on the inner circumferential face 62 of the dielectric ring 50. The inner circumferential edge 64 of the metal ring 52 is spaced apart from the outer circumferential face of the target 48 by a distance "c". The outer circumferential edge of the metal ring 52 is in contact with the inner face of the side wall of the processing chamber 34. In this embodiment, a = 2.5 mm, b = 3 mm and c = 2.5 mm, although other distances may also be used. Therefore, the gap between the metal ring 52 on the one hand and the cathode 38 and target

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48 on the other is 2.5 mm (distance c and distance a). In addition, the depth of the gap, which is the shortest path extending from the entrance of the gap to the inner circumferential face 62, is the sum total of the thickness of the metal ring 52 (3 mm) and the length by which the metal ring projects (b = 3 mm), and is approximately 6 mm. In this way, because the width of the gap is 3 mm, or less, and the depth of the gap is 3 mm, or more, plasma does not enter the gap. Consequently, film is not deposited on the inner circumferential face of the projecting part of the dielectric ring 50, and the cathode 38 and target 48 do not short-circuit to the metal ring 52 (in other words there is no short-circuiting to the processing chamber 34).

[0029] [In the configuration according to] The embodiment of Figure 3[, the present invention] employs a configuration comprising a dielectric ring 50 and metal ring 52, instead of the conventional grounding shield, in order to reduce the stray capacitance between the cathode 38 and the grounding shield. In this context, in order to make the device efficient, it is useful to prevent the stray capacitance between the cathode 38 and processing chamber 34 from becoming large in other components. Therefore, it is desirable to configure the distance between the cathode 38 and the parts of the processing chamber 34 generally as follows. Firstly, it is preferable for the distance L2 between the outer circumferential face of the shaft 40 of the cathode 38 and the inner circumferential face of the mouth part of the top plate of the processing chamber 34 to be made 5 mm or

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more, and for the distance H3 in the height direction of the gap part of this distance L2 to be made 150 mm or less. In addition, it is preferable for the distance H1 between the upper face of the cathode 38 and the lower face of the top plate of the processing chamber 34 to be made 20 mm or more, for the distance L1 between the outer circumferential face of the cathode 38 and the inner face of the side wall of the processing chamber 34 to be made 20 mm or more, and for the distance H2 in the height direction of the gap part of this distance L1 to be made 50 mm or less. However, other distances may suffice depending upon other factors including the frequency and power levels used.

[0040] Figure 7 is a sectional view of a fifth embodiment of the present invention, as in Figure 3. In this embodiment, the five metal rings 494, 496, 498, 400, 402 are mounted aligned one on top of the other in the vicinity of the upper face of a dielectric ring 492. The sectional shape of these metal rings will be explained below. The metal rings 494, 496, 400, 402, which with the exception of the central metal ring 498 are flat, project inward by only 5 mm from the inner circumferential face of the dielectric ring 492. The lowermost metal ring 402 covers the lower face of the dielectric ring 492 and its outer circumferential edge is in contact with the inner face of the side wall of the processing chamber 434. It projects inwardly by only [10] 5 mm from the inner circumferential face of the dielectric ring 492. The end of the metal ring 498 is extended in the upward and downward direction, and in addition the upper and lower ends are bent back in the outer

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radial direction. The upper bent-back part 404 covers the vicinity of the end of the uppermost metal ring 494, and the lower bent-back part 406 covers the vicinity of the end of the lowermost metal ring 402. In this way, the entire sectional shape of the central metal ring 498 is shaped like a trident. Therefore, the right-angled bent part in the gap between the central metal ring 498 and the other metal rings is formed in two portions. The vertical gap between the five metal rings is 2 mm. The horizontal gap between the inner circumferential edge of the flat metal rings 494, 496, 400, 402 and the end part of the central metal ring 498 is also 2 mm. The gap between the upper face of the upper bent-back part 404 and the surface of the target 448 is approximately 2 mm.

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Mark-up of Claims 14, 16, 19, and 20

14. (Amended) A high frequency sputtering device, comprising:

a processing chamber;

a high frequency power supply;

a cathode inside the processing chamber, the cathode being electrically insulated from the processing chamber and connected to the high frequency power supply, the cathode extending only along a given axial extent of the processing chamber;

a target mounted on a first side of the cathode; and

a metal plate mounted in the processing chamber adjacent to the cathode but in a location outside of the given axial extent of the cathode, the metal plate having an opening in a central portion thereof, wherein an outer circumferential edge of the metal plate is electrically [connected] grounded to the processing chamber;

the metal plate is arranged so as to form a gap between the metal plate on the one hand and the cathode and the target on the other hand, wherein the gap is sufficiently narrow and sufficiently long so as to substantially prevent plasma from passing through the gap.

16. (Amended) The high frequency sputtering device as claimed in claim 14, wherein the metal plate is located [on] at a side of the target [opposite the cathode].

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19. (Amended) The high frequency sputtering device as claimed in claim 14, wherein a [length] depth of the gap is greater than or equal to about 3 mm.

20. (Amended) The high frequency sputtering device as claimed in claim 18, wherein a [length] depth of the gap is greater than or equal to about 3 mm.